



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,788	06/06/2005	Koichi Sato	03500.018152	6628
5514 7590 10/03/2007 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER MARTIN, LAURA E	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 10/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary	Application No. 10/537,788	Applicant(s) SATO ET AL.	
	Examiner Laura E. Martin	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/6/05, 5/2/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

Acknowledgement is made of the information disclosure statement (IDS) submitted on 5/2/06 and 6/6/05. The submission is in compliance with the provisions of 37 CFR 1.97.

Priority

Acknowledgement is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed on 6/6/05.

Claim Objections

Claims 1 and 7-9 objected to because of the following informalities:

Claim 1: "graft copolymer" should be "a graft copolymer" and "the organic acid groups" should be "the organic acid group";

Claim 7: "the amphiphilic polymer" should be "the amphiphilic copolymer";

Claim 8: "the functiaonl substance" should be "a functional substance";

Claim 9: "the functiaonl substance" should be "a functional substance".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

Claims 1, 2, and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. (EP 1243624 A1) in view of Takizawa et al. (US 5990227 A).

Nakazawa et al. disclose the following claim limitations:

As per claim 1: a set of a first liquid composition and a second liquid composition for printing, each of the liquid compositions comprising a functional substance, an amphiphilic block copolymer or graft copolymer [0011], [0016], [0037], [0017] having an organic acid group, and a liquid medium; and the amphiphilic copolymer contained in the first liquid composition becomes viscous on contact with the second liquid composition [0016].

As per claim 5: at least one of the organic acid group has a pKa of not more than 2 [0165].

As per claim 6: the organic acid group is selected from benzoic acid groups, aliphatic dicarboxylic acid groups, aromatic dicarboxylic acid groups, halogen-substituted benzoic acid groups, and sulfonic acid groups[0016-0017].

As per claim 7: the amphiphilic polymer is a block copolymer having an alkenyl ether as a repeating monomer unit [0016], [0006].

As per claim 8: the functional substance is enclosed by the amphiphilic copolymer [0016] (if the pigment is dispersed by a polymer, than it is surrounded by a polymer).

As per claim 9: the functional substance is a colorant [0016].

As per claim 10: a step of bringing the liquid compositions of the set stated in claim 1 into contact on a medium [0010].

As per claim 11: applying a composition onto a medium by energizing the respective liquid compositions to bring the liquid compositions into contact on the medium, and a driving means for driving the liquid applying means [0003].

Nakazawa et al. do not disclose the following claim limitations:

As per claim 1: the organic acid groups of the copolymers are different in pKa, and the amphiphilic copolymer contained in the first liquid composition becomes viscous by pH change of the first liquid composition on contact with the second liquid composition different in pH from the first liquid composition.

As per claim 2: the first liquid composition becomes viscous on contact with the second liquid composition by change of pH of the respective liquid compositions.

Takizawa et al. disclose the following claim limitations:

As per claim 1: the organic acid groups of the copolymers are different in pKa, and the copolymer contained in the first liquid composition becomes viscous by pH change of the first liquid composition on contact with the second liquid composition different in pH from the first liquid composition (column 2, lines 54-62).

As per claim 2: the first liquid composition becomes viscous on contact with the second liquid composition by change of pH of the respective liquid compositions (column 2, lines 54-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquid set taught in Nakazawa et al. with the disclosure of Takizawa et al. in order to even image density and prevent bleeding.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. (EP 1243624 A1) and Takizawa et al. (US 5990227 A), and further in view of Ma et al. (US 6247808 B1).

Takizawa et al. disclose the following claim limitations:

As per claim 3: the difference in pH between the first liquid composition and the second liquid composition is 0.3 or more (column 4, lines 22-42).

Nakazawa et al. as modified do not disclose the following claim limitations:

As per claim 3: the polymer of the first liquid composition and the polymer of the second liquid composition have respectively an organic acid group or an organic acid salt group having a pKa different from each other by 0.3 or more.

As per claim 4: the difference in pKa between the organic acids is not less than 2.

Ma et al. disclose the following claim limitations:

As per claim 3: the polymer of the first liquid composition and the polymer of the second liquid composition have respectively an organic acid group or an organic acid salt group having a pKa different from each other by 0.3 or more (column 3, lines 15-25; column 4, lines 48-54).

As per claim 4: the difference in pKa between the organic acids is not less than 2 (column 3, lines 15-25; column 4, lines 48-54).


It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink set taught by Nakazawa et al. with the disclosure of Ma et al. in order to provide uniform area fills, improve color quality and reduce bleed reduction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin


MANISH S. SHAH
PRIMARY EXAMINER